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(54) Title: VIDEO CLIP PROGRAM GUIDE		
(57) Abstract <p>A system interactively controlled by a TV viewer remote control transmitter (35) displays, on demand by the viewer and on the viewer's display screen (33), descriptive data and a video clip related to a program identified on the program guide. A tuner (17) receives TV radio frequency or optical transmission signals in a plurality of cable channels and passes a viewer usable signal of any selected one of the channels to a signal combiner. A computer (11) receives any of a plurality of control signals from the TV viewer remote control transmitter (35). It also controls the tuner to pass the viewer usable signal of any selected channel in response to one of the control signals from the TV viewer remote control transmitter. It also receives and stores an input picture image signal containing local program guide data and descriptive data and video clips related to selected ones of the programs identified in the program guide data. The computer also generates an output picture image signal consisting of at least a portion of the input picture image signal. The viewer, by use of the remote, controls the computer to select the content of the output picture image signal to include the descriptive data and video clip of a selected program. The signal combiner combines the viewer usable signal of any selected channel from the tuner with the output picture image signal from the computer to provide a display signal with the selected descriptive data and video clip superimposed over the channel programming display for input to the viewer's display screen.</p>		

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VIDEO CLIP PROGRAM GUIDEBackground Of The Invention

This invention relates generally to interactive video communications and more particularly 5 concerns viewer controlled channel programming guide displays.

Programming guide information is presently displayed to the home TV viewer in non-interactive pages or scrolls of characters conveying programming 10 guide information.

In present programming guide systems, video clip displays of selected program content are available only at the direction and control of the programming source and not the viewer. Unless a viewer happens to 15 tune to the programming guide display at a time a video clip is being presented, no video clip information is available to the viewer.

It is, therefore, an object of this invention to provide a process and in-home video guide hardware 20 by which a home viewer may interactively control a channel programming guide. Another object of this invention is to provide a process and in-home video guide hardware in which a home viewer may, at the viewer's demand, elect to view a video clip related to 25 one or more programs identified on the channel programming guide. Another object of this invention is

- 2 -

to provide a process and in-home video guide hardware which identifies those programs displayed on the channel programming guide for which video clips are available on request by the viewer.

5 Summary of the Invention

In accordance with the invention, a system interactively controlled by a TV viewer remote control transmitter displays, on demand by the viewer and on the viewer's display screen, descriptive data and a 10 video clip related to a program identified on the program guide. A tuner receives TV radio frequency or optical transmission signals in a plurality of cable channels and passes a viewer usable signal of any selected one of the channels to a signal combiner. A 15 computer receives any of a plurality of control signals from the TV viewer remote control transmitter. It also controls the tuner to pass the viewer usable signal of any selected channel in response to one of the control signals from the TV viewer remote control transmitter. 20 It also receives and stores an input picture image signal containing local program guide data and descriptive data and video clips related to selected ones of the programs identified in the program guide data. The computer also generates an output picture 25 image signal consisting of at least a portion of the input picture image signal. The viewer, by use of the remote, controls the computer to select the content of the output picture image signal to include the descriptive data and video clip of a selected program. 30 The signal combiner combines the viewer usable signal of any selected channel from the tuner with the output picture image signal from the computer to provide a display signal with the selected descriptive data and

- 3 -

video clip superimposed over the channel programming display for input to the viewer's display screen.

Brief Description of the Drawings

Other objects and advantages of the invention
5 will become apparent upon reading the following detailed description and upon reference to the drawings in which:

10 FIG. 1 is a block diagram illustrating a preferred embodiment of the hardware of the interactive program guide with descriptive data and video clip capability;

FIG. 2 is a flow chart illustrating the basic process and options of the descriptive and video clip capability of the interactive program guide;

15 FIG. 3 is a representation of an interactive program guide main menu display permitting access to program guide data;

20 FIG. 4 is a representation of the interactive program guide data display in a mode in which the viewer may select the date of programming desired;

FIG. 5 is a representation of the interactive program guide data display in a mode in which the viewer may select the time of programming desired;

25 FIG. 6 is a representation of the interactive program guide data display in a mode in which the viewer may select the program desired;

FIG. 7 is a representation of the interactive program guide data display in which the viewer has selected a program for which a video clip as well as 30 descriptive data is available; and

FIG. 8 is a representation of the interactive program guide data display in which the description data and video clip are displayed.

- 4 -

While the invention will be described in connection with a preferred embodiment and process, it will be understood that it is not intended to limit the invention to that embodiment or process. On the contrary, it is intended to cover all alternatives, modifications and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

Detailed Description of the Invention

Turning first to FIG. 1, the components of the interactive program guide are illustrated. A computer 11 having a command information receiver, preferably an infrared or radio frequency receiver 13, provides a control signal 15 to a tuner 17 and a picture image signal 19 to a digital video board 21. The tuner 17 converts or demodulates radio frequencies or optical transmissions to a signal usable by the viewer to output a signal 23 selected from a plurality of signals 25 input to the tuner 17 from the cable source (not shown), typically frequency division multiplexed video, audio and data signals transmitted via a coaxial cable, over-the-air radio frequencies or fiber optics. The digital video board 21 converts digital data into a video signal. The tuner output or base programming signal 23 has superimposed thereon an information picture image signal 27 from the digital video board 21 in a genlock signal combiner or overlayer 29 to produce a video display signal 31 to the viewer's display screen 33 of the viewer's television. The information picture image signal 27 includes written description or written description and video clip segments providing a brief description and preview of one or more selected programs included in the video guide programming schedule. In each video

clip segment, scenes from the selected program are provided to give the viewer an idea of the program content. An icon is displayed with the title of those programs on the programming schedule for which both 5 descriptive information and a video clip are available. If a video clip is selected, the description and the clip will continue. The viewer sends commands to the receiver 13 to control the operation of the computer 11 and select the video clip to be displayed by the use of 10 a remote control transmitter, preferably an infrared or radio frequency transmitter 35. The computer 11 is based on microprocessor and may utilize random access (RAM) and/or read only (ROM) memory. The software necessary to operate the microprocessor may be embedded 15 in the device or downloaded via the cable system to the device.

The above described interactive program guide components operate in response to the control of the computer 11. While the home viewer is watching 20 programming presented on his display 33 in response to the tuner 17 feeding any basic program signal 23 from the input selections 25 to the genlock combiner 29, the viewer may opt to simultaneously view the programming guide information available to the combiner 29 from the 25 computer 11 through the digital video board 21. The viewer simply presses a predetermined key on the remote 35 to select the "Program Guide" display. As shown in FIG. 3, the "Program Guide" nomenclature will appear on the screen with other main menu information such as 30 "Program Search" or "Custom Setup", as shown on the screen. Preferably, and as shown, the menu automatically defaults to the "Program Guide" selection. At this juncture, the viewer presses a predetermined key on the remote 35, such as the 35 highlight button, to enter the "Program Guide" program

- 6 -

as is illustrated in the display of FIG. 4.

Preferably, by use of up or down arrow, the viewer then selects the date for which programming is desired. As shown, the user has selected May 12 as the date of 5 programming.

Turning to FIG. 5, the viewer next selects the time slot of programming desired, preferably by using the right arrow to sequence through the times available. The time selected will be highlighted and, 10 as shown in FIG. 5, the viewer has selected the 9:00 a.m. time slot. By pressing another predetermined key on the remote 35, such as the highlight button, the user can now highlight or identify the program at which the guide is presently set, as shown in FIG. 6. Then, 15 by use of predetermined keys on the remote 35, preferably the up or down arrows, the viewer can move the highlight cursor to select a program containing an icon which indicates that a video clip is available with respect to that particular program. The highlight 20 was originally set at the program "Settle the Score" as shown in FIG. 6. In FIG. 7, the user has shifted the highlight down to the program "The Beverly Hillbilly's" which includes an icon 40 indicating that a video clip 25 is available. The viewer then presses a predetermined key on the remote 35, such as the highlight button, to cause the written description and video clip related to the selected program to be displayed on the video screen 33. This is illustrated in FIG. 8.

In accomplishing this display, as shown in 30 FIG. 2, when the viewer has selected the program to preview 41, the video clip routine of the computer 11 inquires "does a preview for program exist" 43. If the answer to this inquiry is "NO" 45, the routine proceeds through a "display description page" 47 in which only 35 the written description available with respect to the

- 7 -

program is displayed. As shown, this display will continue through a "wait for user exit" period 49 until the viewer leaves this mode by pressing a predetermined key on the remote 35 such as the exit key to "exit out 5 description page" 60. If the response to the inquiry, "does a preview for program exist" 43 is "YES" 51, the computer 11, will then "load video preview" 53 through the digital video board 21 to the genlock 29 for combination with the signal 23 from the tuner 17. The 10 viewer's video display 33 will then, in the "display description page" step 55 and the "start video playing step" 57, cause the video clip to be played in a continuous loop in simultaneous display with the written description. This display will continue 15 through "wait for user exit" period 59 thus continuing the display until the viewer leaves this mode by pressing a predetermined key on the remote 35, such as the exit key to "exit out of description page" 60.

Thus, it is apparent that there has been 20 provided, in accordance with the invention, a video clip program guide that fully satisfies the objects, aims and advantages set forth above. While the invention has been described in conjunction with specific embodiments thereof, it is evident that many 25 alternatives, modifications and variations will be apparent to those skilled in the art and in light of the foregoing description. Accordingly, it is intended to embrace all such alternatives, modifications and variations as fall within the spirit of the appended 30 claims.

WHAT IS CLAIMED IS:

1. A system interactively controlled by a remote control for displaying video clips corresponding to programs identified on a program guide on a display screen comprising:

a tuner for receiving a plurality of channels of video signals and for providing a viewer usable signal from among said channels;

a computer having input means for receiving control signals from said remote control, output means for directing said tuner to provide said viewer usable signal in response to said control signals, means for receiving an input picture image signal containing program guide data and video clips corresponding to programs identified by said program guide data, and means for generating an output picture image signal including at least one of said video clips; and

means for combining said viewer usable signal and said output picture image signal to provide a display signal for input to said display screen.

2. The system of claim 1 further comprising means for indicating which ones of said video clips exist for programs identified on said program guide.

3. The system of claim 2 wherein said means for indicating whether said video clips exist comprises means for displaying an icon adjacent to those program titles for which said video clips exist.

4. The system of claim 1 further comprising means for allowing a user to select from among said programs identified on said program guide a user

- 9 -

selected program to preview by viewing a corresponding one of said video clips.

5. The system of claim 4 further comprising means for displaying written description pages containing descriptions of the content of at least some of the programs identified on said program guide.

6. The system of claim 5 further comprising means for simultaneously displaying said written description pages and said video clips.

7. The system of claim 5 further comprising means for determining whether one of said video clips exists for the user selected program to preview.

8. The system of claim 7 wherein, when it is determined by said means for determining that said one of said video clips does not exist for said user selected program to preview, said means for displaying said written description page displays a written description page corresponding to that user selected program.

9. The system of claim 7 wherein, when it is determined by said means for determining that said one of said video clips exists for said user selected program to preview, said means for generating generates an output picture image signal including said one of said video clips corresponding to that user selected program.

10. The system of claim 7 further comprising means for waiting for a user exit.

- 10 -

11. The system of claim 1 further comprising means for displaying one of said video clips in a continuous loop.

12. The system of claim 1 further comprising means for sequencing through time slots and selecting a particular time slot for which said program guide data is to be displayed.

13. The system of claim 1 further comprising means for downloading software for said computer via a cable system.

14. A method for displaying video clips corresponding to programs identified on a program guide on a display screen comprising the steps of:

receiving a plurality of channels of video signals with a tuner;

using said tuner to provide a viewer usable signal from among said channels;

receiving control signals from a remote control;

using a computer to direct said tuner to provide said viewer usable signal in response to said control signals;

receiving an input picture image signal containing program guide data and video clips corresponding to programs identified by said program guide data;

generating an output picture image signal including at least one of said video clips; and

combining said viewer usable signal and said output picture image signal to provide a display signal for input to said display screen.

- 11 -

15. The method of claim 14 further comprising the step of indicating which ones of said video clips exist for programs identified on said program guide.

16. The method of claim 15 wherein said step of indicating whether said video clips exist comprises the step of displaying an icon adjacent to those program titles for which said video clips exist.

17. The method of claim 14 further comprising the step of allowing a user to select from among said programs identified on said program guide a user selected program to preview by viewing a corresponding one of said video clips.

18. The method of claim 17 further comprising the step of displaying written description pages containing descriptions of the content of at least some of the programs identified by said program guide.

19. The method of claim 18 further comprising the step of simultaneously displaying said written description pages and said video clips.

20. The method of claim 18 further comprising the step of determining whether one of said video clips exists for the user selected program to preview.

21. The method of claim 20 further comprising the step of displaying a written description page corresponding to the user selected program when it

- 12 -

is determined that said one of said video clips does not exist for said user selected program to preview.

22. The method of claim 20 further comprising the step of generating an output picture image signal including said one of said video clips corresponding to that user selected program when it is determined that said one of said video clips exists for said user selected program to preview.

23. The method of claim 19 further comprising the step of waiting for a user exit.

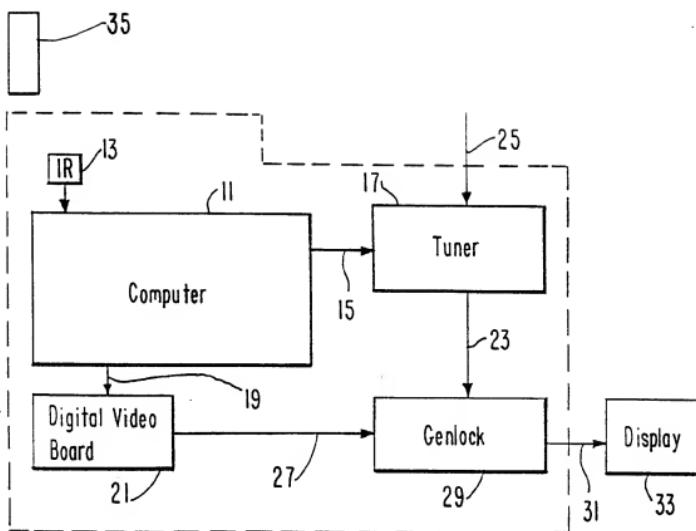
24. The method of claim 14 further comprising the step of displaying one of said video clips in a continuous loop.

25. The method of claim 14 further comprising the steps of:

sequencing through time slots; and selecting a particular time slot for which said program guide data is to be displayed.

26. The method of claim 14 further comprising the step of downloading software for said computer via a cable system.

FIG. 1



2/5

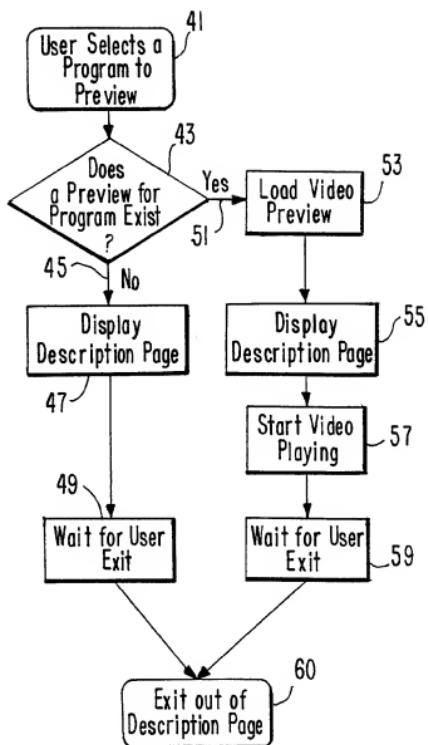


FIG. 2

3/5

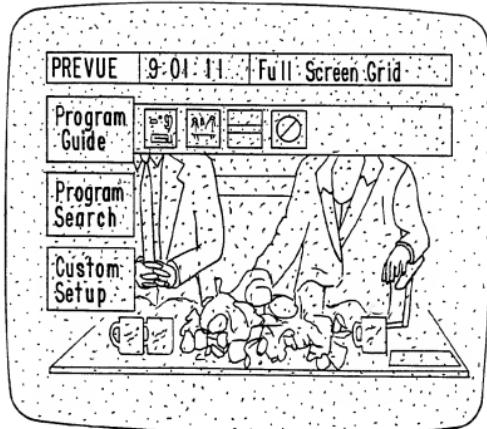


FIG. 3

PREVUE 9:18:11 Select Day to View		
MAY 12	9:00 AM	9:30 AM
2 KJRH	Live Regis & Kathie Lee (CC)	
3	Smothers Brothers Comedy Hour (CC)	
4 DIS	Mouse Track	Care Bears
5 KOKI (CC)	Paid Program	Paid Program (CC)
6 KOTV	« This Morning	
7 KWHB	Prayer (CC)	Victory (CC)

FIG. 4

4/5

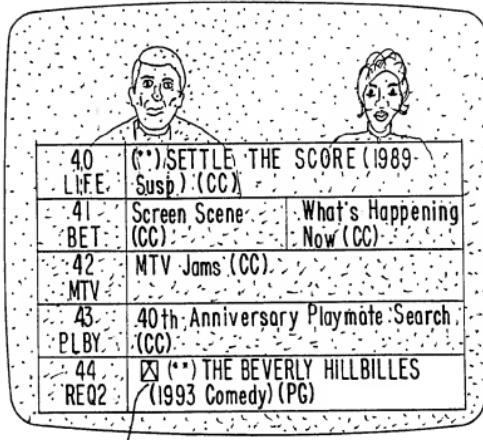
PREVIEW		9:18	16	Select time to view
MAY-13		9:00AM	►	9:30AM
39	NICK	Eureka's Castle (CC)		
40	LIFE	(**) SETTLE THE SCORE (1989 Susp) (CC)		
41	BET	Screen Scene (CC)	What's Happening	
42	MTV	MTV Jams (CC)	Now (CC)	
43	PLBY	40th Anniversary Playmate Search (CC)		
44	REQ2	(**) THE BEVERLY HILLBILIES (1993 Comedy) (PG)		

FIG.5

PREVIEW		9:18	16	Select time to view
MAY-13		9:00AM	►	9:30AM
39	NICK	Eureka's Castle (CC)		
40	LIFE	(**) SETTLE THE SCORE (1989 Susp) (CC)		
41	BET	Screen Scene (CC)	What's Happening	
42	MTV	MTV Jams (CC)	Now (CC)	
43	PLBY	40th Anniversary Playmate Search (CC)		
44	REQ2	(**) THE BEVERLY HILLBILIES (1993 Comedy) (PG)		

FIG.6

5/5



40

FIG.7

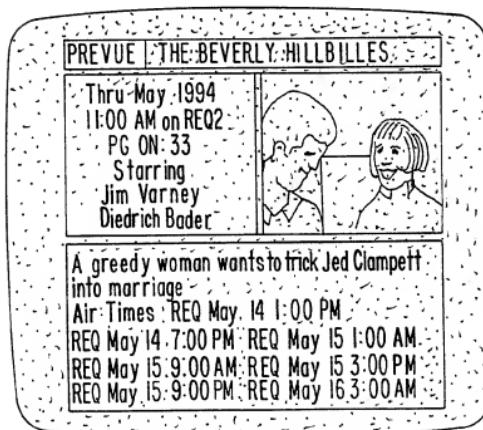


FIG.8

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 95/06340

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 6 HO4N7/173

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 6 HO4N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	<p>WO-A-95 01058 (APPLE COMPUTER INC) 5 January 1995</p> <p>see page 5, line 1 - page 9, line 7 see page 25, line 1 - page 33, line 7 see page 40, line 1 - page 48, line 23 see page 53, line 1 - page 65, line 13 see page 68, line 1 - page 70, line 7 see page 74, line 1 - page 75, line 10 see figures 1-50</p> <p>---</p> <p style="text-align: center;">-/-</p>	<p>1-9, 11-22, 24-26</p>

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

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- '&' document member of the same patent family

Date of the actual completion of the international search

4 September 1995

Date of mailing of the international search report

25.09.95

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

Inte... nai Application No

PCT/US 95/06340

C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>IEEE COMMUNICATIONS MAGAZINE, vol. 32, no. 5, May 1994 NEW YORK, NY, US, pages 68-80, XP 000451097</p> <p>CHANG ET AL 'An Open-Systems Approach to Video on Demand' see page 69, right column, line 28 - page 70, right column, line 10 see page 71, right column, line 60 - page 72, right column, line 8 see page 73, right column, line 19 - page 74, left column, line 22 see figures 1-3,5</p> <p>---</p>	1,2,4, 13,14,17
Y	<p>PROCEEDINGS OF THE IEEE, vol. 82, no. 4, April 1994 NEW YORK, NY, US, pages 585-589, XP 000451419</p> <p>MILLER 'A Scenario for the Deployment of Interactive Multimedia Cable Television Systems in the United States in the 1990's' see page 588, left column, line 34 - page 589, right column, line 36 see figures 3,4</p> <p>---</p>	1,2,4, 13,14,17
P,A	<p>EP,A,0 624 039 (AT&T) 9 November 1994 see page 3, column 3, line 20 - page 8, column 13, line 32 see figures 1-8</p> <p>-----</p>	1-26

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int'l Application No

PCT/US 95/06340

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO-A-9501058	05-01-95	AU-B-	7114394	17-01-95
EP-A-624039	09-11-94	AU-B- AU-B- CA-A- JP-A-	660387 5933994 2116801 7015720	22-06-95 10-11-94 04-11-94 17-01-95